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25 January 1982

# Worldwide Report

## NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 130

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# JUDGE ORDERS UNION TO LIFT YELLOWCAKE SHIPPING BAN

## Federal Court Ruling

Perth THE WEST AUSTRALIAN in English 7 Nov 81 p 26

[Text] Sydney: A Federal Court judge yesterday granted an interim injunction restraining the Seamen's Union from hindering the export or uranium yellowcake.

Mr Justice Morling heard the case in Brisbane but gave his decision in Sydney.

Mary Kathleen Uranium Ltd and the Queensland Attorney-General had applied to the court seeking interim relief.

Mr Justice Morling said the evidence established that MKU was suffering grievous loss.

"As a result of delays in shipment which have already occurred the applicant company has incurred additional costs or losses running into hundreds of thousands of dollars," he said.

"It employs about 500 people at its mine and treatment plant and incurs operating costs of about $1 million a week in operating the mine and the plant.

"The company's inability to ship uranium concentrates has cut off its income.

"It is substantially in arrears in its normal shipping programme.

"If the company had been able to adhere to a normal shipping programme it would already have received the greater part of a total sum of $24 million which is the value of shipments which have been delayed."

### ACTU Belief

Mr Justice Morling said that the ACTU believed that Australian workers should not contribute to the dangers which the improper use of the uranium might create by mining or exporting.

"In broad terms the ACTU's policy is that workers should not assist in any way the mining and export of uranium," he said.

[MKU owns and operates a mine and treatment plant at Mary Kathleen in central Queensland which produces uranium concentrate].

Mr Justice Morling said that all the uranium produced was sold to corporations outside Australia for final use in electricity generation in Japan, West Germany and the United States.

"Pursuant to contracts made with these corporations, the applicant company has obligations to ship various quantities of uranium concentrate in compliance with time schedules" the judge said.

"It is contractually bound to supply big quantities of concentrate by December 31 this year.

Booking

The judge said that late in May, MKU made a booking for seven containers of uranium concentrate to be shipped from Brisbane in the vessel ACT 4, which was scheduled to leave on June 16.

The containers were loaded into the vessel but because of bans imposed by the respondents the ship could not be moved," the judge said.

"The vessel required tugs to unberth and move down the Brisbane River and out to sea."

The ban imposed by the respondents prevented tugs from being used, he said.

"Eventually the ban was lifted and the ship left Brisbane on June 19," the judge said.

"Since that time the agents for shipping companies have indicated that they are not prepared to accept further bookings for MKU until there is a clear indication of a change in the respondents' policy to the export of uranium."

Mr Justice Morling stood the matter over to December 1.

## Mary Kathleen Shipment

Brisbane THE COURIER-MAIL in English 10 Nov 81 p 21

[Article by Jack Lunn: "Mary Kathleen Gets Green Light for Uranium Shipments"]

[Text] **MARY Kathleen Uranium Ltd is looking for a ship that can take $24 million worth of yellowcake from Brisbane to the United States as soon as possible.**

MKU will resume the shipments after winning an injunction against the Seamen's Union in the Federal Court of Australia in Sydney.

"We have about $24 million worth of yellowcake stored at Mary Kathleen, near Mt Isa," a spokesman for CRA, the parent of MKU, said in Melbourne last night.

"It will leave Mary Kathleen for Brisbane as soon as we can get a vessel in Brisbane. We don't like leaving the uranium sitting around in Brisbane too long as the extra guarding can be expensive."

None of MKU's production has been shipped since June because of Seamen's Union opposition to uranium mining.

The company's injunction against further hindrance by the Seamen's Union is on an interlocutory basis pending final hearing of a claim under Section 45D of the Trade Practices Act — the secondary boycott provision, or Laidley clause, introduced last year.

The case has been listed for mention on December 14 to fix a date for hearing early next year, probably in Brisbane.

Until this year MKU shipped uranium concentrates through Brisbane with few problems.

From March 1978 until February 1981 shipments of uranium concentrates were made from Brisbane without incident except for a one-hour stoppage in 1978.

But from early this year delays to yellowcake shipments made frequent headlines.

On May 20 $12 million worth of the uranium oxide was shipped from Brisbane after being delayed at Mayne railway yards for six weeks.

In June another $8,500,000 consignment was delayed, and in August the company said that bans since February had cost the company $600,000. They said the loss would increase as stocks accumulated.

The stocks have now accumulated to more than 300 tonnes worth more than $24 million.

Losses on the hold-ups could now be pushing towards the $1 million mark.

Not that we will be reading headlines about Mary Kathleen, its shipment problems, and losses on yellowcake stockpiles much longer.

The mine and treatment plant, which employ about 500 people, are expected to be shut down during 1983 because of uneconomic ores.

## Barge Alternative

Sydney THE SYDNEY MORNING HERALD in English 11 Nov 81 p 16

[Text] DARWIN. — The Northern Territory Government has approved the shipment of uranium yellow cake by barge from a former flying boat base in Darwin harbour.

TheMinister for Mines and Energy, Mr Tuxworth, said the prolonged dispute on the Darwin waterfront had forced the Government and uranium producers to make alternative arrangements for exports.

Eighteen containers of yellow cake from the Ranger mine have been standing on the wharf since October 16 because Waterside Workers' Federation members have refused to load it on the Pacific Sky in line with ACTU and WWF policy.

The Government and the producers would rather see yellow cake handled by Darwin waterside workers, Mr Tuxworth said.

The Pacific Sky was expected back in Darwin soon and a further attempt to load it with the yellow cake would be made.

If the ore was not loaded at a second attempt it would be moved to the east arm site, 20km east of Darwin, and loaded on to a barge for Singapore, Mr Taxworth said.

## New Port Proposal

Melbourne THE AGE in English 10 Nov 81 p 3

[Text] Darwin.--The Northern Territory Chief Minister, Mr Everingham, has suggested that a special port for uranium yellowcake could be developed to handle the Territory's output.

It would be manned by nonunion labor, he said.

The suggestion is the latest in the verbal battle between the Government and Darwin Waterside Workers' Federation members, who are refusing to handle yellowcake.

CSO: 5100/7510

## WA PREMIER DISCUSSES STAND ON NUCLEAR POWER STATION

Perth THE WEST AUSTRALIAN in English 6 Nov 81 p 18

[Article by E. A. Barker: "Nuclear Is an Option, Says Premier"]

[Text] The WA Government is not irrevocably committed to building a nuclear power station, says the Premier, Sir Charles Court.

He said yesterday that the aim was to get the cheapest energy possible with proper regard for all the options that were available.

If it was eventually decided that a nuclear station was wanted as part of an energy system, it would not be built till the mid-1990s.

Sir Charles said: "We don't have to get involved in the detail at this stage because it is so far off.

### FOOLISH

"But we would be foolish not to have nuclear power as one of our options."

In June 1979 the Government gazetted about 10 square kilometres at Breton Bay—90km north of Perth—as a power-station site.

On June 13 last year it resumed 2.43 sq km which previously belonged to the Chew family trust.

In December last year a Perth lawyer, Mr Stephen Chew, applied to the Public Works Department for compensation.

Mr Chew said yesterday that there was still no agreement on price.

"They want to work on a valuation basis and I want to work on a commercial transaction," Mr Chew said. "We are at loggerheads."

The Government had now suggested arbitration, but he did not know when that would be.

Mr Chew said that his valuation and the Government's valuation differed, but he would not give the figures.

In Parliament on Wednesday, Sir Charles was asked if the Breton Bay site was still reserved for a nuclear power station and whether it was likely to be needed.

Sir Charles said that the resumed property was suitable for a conventional or nuclear power station.

Energy policy provided for all energy generation options to be considered, including a nuclear power station if it was required in future.

He was replying to Labor's spokesman on urban development and town planning, Mr R. Davies (Victoria Park), who also asked whether Sir Charles knew that the location was hindering subdivision in the area and causing worry to the local authority.

Sir Charles said he knew of no such restrictions or worry. He was seeking information about the latest position and would let Mr Davies know.

Sir Charles said yesterday that there was much misinformation about nuclear power.

Anyone who tried to put the positive side was howled down by propagandists.

Nuclear power was by far the safest form of energy generation.

He described the move by the Stirling City Council for a referendum on nuclear power as a political stunt.

CSO: 5100/7510

## DEPUTY PRIME MINISTER PREDICTS URANIUM INDUSTRY BOOM

Perth THE WEST AUSTRALIAN in English 10 Nov 81 p 20

[Text] Sydney: Australia's uranium industry was now in a position to reach its full potential, the Deputy Prime Minister, Mr Anthony, said yesterday.

He said domestic problems that held up the industry's growth had been largely overcome.

Ranger uranium mine would start production at the end of this month—the second uranium project to come on-stream in 18 months.

Mr Anthony was speaking at the Australian Institute of Energy conference in Sydney. He said that Australia could be exporting 7000 tonnes of yellowcake by 1985.

Last year 1100 tonnes of refined uranium worth $100 million was shipped out of the country.

### DOUBLE

Mr Anthony said future projects could double Australia's export capacity by the end of the decade.

"It is clear that Australia, with 16 per cent of the West's low-cost reserves and an optimistic outlook for more discoveries, has the resources to greatly increase future uranium production levels," he said.

Mr Anthony, who is also the Trade and Resources Minister, warned against complacency in the world energy market.

He said he was shocked by suggestions that the easing in world oil market conditions could bring about complacency. The world could not afford to be unprepared for a third oil crisis.

"It cannot afford all the threats to peace and international security that such crises have brought with them in the past," he said.

But Mr Anthony was optimistic about the future of Australia's energy exports.

He said that the growth in that area would be the dominant feature of Australia's trading account during the 1980s.

The Trade and Resources Department had forecast that energy exports would increase four to five fold over the decade with the strongest growth in the fields of steaming coal and uranium.

Mr Anthony said that there was also greater confidence in the crude-oil industry's capacity to meet Australia's needs.

CSO: 5100/7510

## COMMITTEE PROPOSES NEW LAWS FOR NUCLEAR POWER STATIONS

Melbourne THE AGE in English 11 Nov 81 p 1

[Article by Lorenzo Boccabella: "Prepare for N-Power: Report Calls for New Nuclear Laws"]

[Text] **CANBERRA. — A Government committee has urged Australia to prepare legislation for the licensing and control of nuclear power stations.**

**The committee found that nuclear power would not be economically feasible for at least 10 years, but it would be advisable to start planning the regulatory framework now.**

The committee, chaired by Sir David Zeidler, was commissioned by the Federal Government and the State Governments of Victoria, New South Wales, South Australia and Tasmania to inquire into electricity generation and power-sharing resources in the south-east region of Australia.

The committee concluded that it was not economically feasible for the four southern States to set up an integrated electricity grid to share power generation resources.

For Victoria, the recommendation on the grid means there will be no long-term relief from higher electricity charges which might have come from a power-sharing arrangement.

On nuclear energy, the committee found that "on the evidence available nuclear power was unlikely to provide cheaper base load electrical energy than either black or brown coal fired stations in Victoria for at least the next decade".

"It has also been indicated that a minimum of 15 years would be required to establish the necessary regulatory framework and construct a nuclear station in Australia.

"Although not a committee recommendation, but in view of possible developments in the field of nuclear power plants during the coming decade, it would seem a prudent provision by the Commonwealth and State Governments to develop and agree on the necessary legislation and regulations to license and control such installations against the time when they may have become an acceptable alternative."

On the integrated power grid proposals, the committee considered whether there would be any benefits from sharing power between the four States.

It examined the problem of each State power authority having to build enough electrical geenerating capacity to cope with the big peaks in consumption at morning and evening periods.

This means that there is considerable idle capacity between the peak periods. It was suggested by backers of the power grid plan that if the States shared their power in differing peak times then, overall, fewer power stations would have to be built. States could have also helped each other to share power if a shortage developed.

### Fewer benefits

But the committee found that "the financial benefits which might accrue from the establishment of such a grid are estimated to be markedly less than those which would derive from investment in local generating plant using resources indigenous to each State.

"The committee has not identified any national economic benefit which would be likely to compensate for the financial disadvantage of establishing such a strongly integrated grid," the report said.

The poorer energy States of Tasmania and South Australia would have benefited most from the introduction of a power grid system.

New South Wales and Victoria already share power from the Snowy Mountains hydro electric scheme but the committee found there were no benefits to extending that interconnection.

In the future, South Australia may need to obtain energy from either New South Wales or Queensland, it said.

The Federal and State Governments commissioned the inquiry in April last year under Sir David Zeidler, who is a former chairman of the chemical company ICI.

CSO: 5100/7510

## CORRESPONDENT ON U. S. SUPPLY TO POWER PLANTS

Calcutta THE STATESMAN in English 30 Dec 81 pp 1, 9

[Article by Warren Unna]

[Text] WASHINGTON, Dec. 29.—U.S. officials denied here yesterday that there has either been any vendetta or discrimination against India in denying her certain high technology equipment. On the contrary, it was said, the U.S. export control policy has been quite liberals "towards India and considerably tougher in these matters towards Pakistan"

U.S. officials were questioned after the Indian Embassy's supply mission here had noticed a series of difficulties in obtaining U.S. export licenses for importing sensitive equipment into India over the past six months. Some items have been cleared, some still are under discussion, and some, particularly oscilloscopes—fancy test instruments which can be used in the diagnostic and testing phases of nuclear weapons—have been denied.

The U.S. Department of Commerce explained that where denial has occurred it has been because the oscilloscopes requested by India's U.S. manufacturer for export from here have been of a larger band-width than considered necessary for the use requested.

Instead, Commerce officials said, oscilloscopes of lesser capacity were recommended for export approval.

Indian officials are aware of U.S. sensitivities on exporting equipment with a potential use in the development of nuclear arms, equipment embargoed to such non-signer of the Nuclear Non-Proliferation Treaty as India by the U.S. 1978 Nuclear Non-Proliferation Act.

But they said that the equipment sought here was specifically for non-nuclear projects — thermal power plants, space and aviation industry items, laboratory research in Dehra Dun and Bangalore, and equipment in all-India Radio. The particularly large oscilloscope, it was explained actually was for Air.

However, U.S. export licences also have been sought for equipment for nuclear power stations at Tarapur, outside Bombay, and Narora, in U.P. The Tarapur nuclear power plant, in particular, long has been a matter of Indo-American controversy because of its dependency on U.S. nuclear fuel rods and the U.S.'s failure to ship any more enriched uranium to keep Tarapur refuelled.

"It is erroneous that the U.S. policy has changed. There simply has been an effort to clear up the backlog of cases, and even though their misuses may seem remote to the customer we opt for caution on items with a nuclear potential. These items have been denied for export for years and years", explained one official in the U.S. Department of Commerce's international trade administration

When items on what is called the "nuclear referral list" are requested for export, they are reviewed by an inter-agency committee composed of representatives of the Departments of State, Energy, Commerce, Defence the Nuclear Regulatory Commission and the Arms Control and Disarmament Agency.

The committee, called the Subgroup on Nuclear Export Coordination is chaired by a representative of the State Department's office of nuclear export and import control, Mrs Eleanor Steinbegg, and staffed by a secretariat from the Department of Energy headed by Mr Zan Hollander. But inquiries yesterday did leave a few things unanswered.

Mr Hollander found SNEC has reviewed no oscilloscope import request from India for the past several months. (He did say SNEC had turned down India's request for heavy water manufacture equipment in accordance with a general export embargo on that, and that, on the other hand SNEC had approved the export of U.S. equipment to double the capacity of an Indian military computer concerned with research and development.)

The other matter left unexplained was that when India's Ambassador to the USA, Mr N. K. R. Narayanan, several weeks ago, brought the export licence difficulties to the attention of Mr Nicholas Vellotes, the U. Assistant Secretary of State for Near East and South Asia, Mr Vellotes, the top U.S. official concerned with Indo-American relations and the representative of a department which chairs the inter-agency committee, said he knew nothing about the matter.

As for Pakistan, SNEC's secretary, Mr Hollander, said when it requested oscilloscopes of a certain band-width, the request was denied and a smaller band-width was suggested for export instead.

"I can assure you this much : the Pakistanis have a lot more trouble getting stuff than the Indians do if it has any nuclear application. There has been no discrimination against India. We apply the same rules towards Pakistan or virtually any country and looking over the Indian cases, I find a very liberal attitude in U.S. policy" Mr Hollander reported

Mr Hollander's comment was in good part echoed by Mr J. Robert Cutler, the Department of Commerce's representative on SNEC, and by Mr Robin Delabarre, of the State Department's office of nuclear export and import control.

CSO: 5100/7040

# EDITORIAL BEGRUDGES DISCRIMINATORY TREATMENT

Karachi DAWN in English 28 Dec 81 p 9

[Editorial: "Tarapur in the Balance"]

[Text] THE dispute between the US and India on the Tarapur nuclear agreement has taken an interesting turn. The eight-month old negotiations between the two Governments are not designed to save the accord but to "terminate it amicably". The talks have so far failed to produce results because differences on how the terms of the 30-year accord are to be interpreted upon its termination have not proved easy to compose. Failure to reach agreement had earlier given rise to speculation that India might unilaterally abrogate the accord and adopt a course of action it deems fit for the development of its nuclear programme. But Mrs. Gandhi's statement last week that the United States' final decision should ensure that the Tarapur plan continues to operate indicates that New Delhi is prepared to put off unilateral action for some time. In that context, Mr. Haig's postponed visit to the subcontinent, when it does take place, could be quite decisive for Indo-American relations.

Differences on the Tarapur accord, which should normally have remained in force until 1993, came to the fore in 1978 when the US Congress passed the Nuclear Non-Proliferation Act and the Carter Administration insisted that India place all its nuclear installations under full-scope international safeguards. India refused to do so on the ground that the 1963 accord provided for safeguards to apply only to the Tarapur plant. Although the Carter Administration managed to continue supplying the enriched uranium for Tarapur after presidential intervention with the Congress, the Reagan Administration on assuming office declared itself in favour of terminating the pact. Fresh controversy has now arisen over the terms of the cancellation. While the US insists that international safeguards should continue to be applied indefinitely on the spent fuel and equipment already supplied, India refuses to accept these safeguards once the accord has been terminated. Termination of the pact on India's terms would, in effect, give the Indian Government greater freedom of action.

The issue has been projected by the media as being one of difference of interpretation of the terms of an accord. But in reality the implications of Tarapur are much wider and more serious than has been made out to be. The thrust of Indian policy is towards delinking the supply of nuclear fuel from international safeguards. That New Delhi will not open up its nuclear plants to international inspection is now quite clear, irrespective of the American stand. Even if the US finally discontinues supply of enriched uranium, Mrs. Gandhi's Government has not much to worry about since it hopes to secure the fuel from other more friendly sources. Moreover, there are reports that Indian scientists have after years of research devised a fuel using mixed oxide rather than uranium for Tarapur. In any case, the major nuclear technology exporting powers now find themselves unable to influence the course of India's nuclear policy, much as they claim to be attempting to do so. In this context, the stringent restrictions they have imposed on other non-nuclear States in the Third World appear to be all the more discriminatory. Pakistan is a case in point. Its nuclear programme has been subjected to strict surveillance by the nuclear exporters even though its nuclear plant at Karachi is under IAEA's inspection, and Islamabad has repeatedly declared that its nuclear plans are for peaceful purposes only. Yet it has found its plant to Islamabad. The Car- the policies adopted by the nuclear exporters. Canada terminated its nuclear cooperation accord with Pakistan five years ago, and France dropped its deal for the supply of a nuclear reprocessing plant to Islamabad. The Carter Administration twice suspended economic aid to impress upon Pakistan America's disapproval of our nuclear policies. And all along neighbouring India, which has categorically refused to affirm that it will not resort to nuclear test explosions, has proceeded unchecked towards the realisation of its nuclear aims, which, it is widely thought, do not relate only to peaceful uses of the atom.

CSO: 5100/4514

## BRIEFS

NUCLEAR PLANT USES FRG URANIUM--(NA)--Argentina will concoct its own nuclear fuel at the Ezeiza atomic plant beginning this February, significantly reducing its dependence on industrial countries for nuclear technology. The plant will turn out 30 nuclear fuel elements each month by the middle of 1982. At full capacity, the plant will annually consume 45 tons of zircaloy, which sheathes the fuel, and 340 tons of uranium dioxide, which will be imported from West Germany until it, too, can be made in Argentina, by the National Atomic Energy Commission (CNEA) plant at Cordoba. The fuel will initially supply the Atucha I atomic power plant, providing all of that facility's fuel by 1985, and, by 1987, it is expected that all the fuel needed for the Atucha II nuclear power plant will also be made in Argentina. The nuclear fuel factory will be run by the Conuar Company, 75 percent of which is privately owned and the rest of which is held by the CNEA. [Text] [PY272121 Buenos Aires HERALD in English 27 Dec 81 p 9]

CSO: 5100/2070

## MEMORANDUM ON NUCLEAR TECHNOLOGY EXCHANGE SIGNED WITH UNITED KINGDOM

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 2 Dec 81 p 6

[Text] London--The foreign ministers of Brazil and Great Britain this morning signed a memorandum of understanding aimed at the exchange of information and technological advancement in the peaceful use of atomic energy. Basically, the agreement gives emphasis to industrial integration and the handling of radioactive waste. Minister Saraiva Guerreiro declared yesterday that his trip to London did not essentially anticipate the signing of the agreement (it was almost postponed) but the matter developed sufficiently to the point of permitting its conclusion at the last minute.

In fact, the signing was not anticipated in Guerreiro's official program, the reason why it was decided to have it take place at the Claridge Hotel, where the foreign minister is lodged, minutes before his departure for Miami. The minister explained that there is now a general nuclear agreement between the two countries which was signed in 1976 and this memorandum only details more specific areas of action, with a view to closer cooperation in the industrial sector.

"There is no direct connection with the generation of nuclear energy," he explained. "It deals more with matters of quality control, safety, atomic wastes, etc."

Until yesterday, there were still some doubts to be resolved, principally with reference to the commitments of the two countries with regard to nuclear proliferation, which was resolved with the introductory phrase: "Considering their respective commitments to the nonproliferation of nuclear weapons." The vague sentence does not tie either of the countries to future commitments since it is acknowledged that each one will act in accord with those already assumed with other partners and the international agencies.

### The Agreement

Following is the text of the agreement that will be signed today:

"The government of the Federative Republic of Brazil and the government of the United Kingdom of Great Britain and Northern Ireland, desirous of increasing their collaboration in the field of the peaceful uses of nuclear energy;

"Convinced that reciprocal cooperation in the field of the peaceful uses of nuclear energy will broaden the scope of industrial cooperation in that field for the benefit of both countries;

"Convinced of the importance of promoting the development of nuclear energy to meet its energy needs, through the exchange of scientific, technical and economic information, including the transfer of technology, by means of granting commercial licenses;

"Considering their respective commitments to the nonproliferation of nuclear weapons;

"Considering the memorandum of understanding signed on 21 October 1975 on consultation on matters of economic and industrial cooperation and technological exchange;

"Considering the agreement on technical cooperation between the two governments signed on 19 January 1968 and the agreement signed on 18 November 1974 between the National Nuclear Energy Commission (CNEN) and the United Kingdom Atomic Energy Authority;

"Have reached the following understanding:

"1. The two governments will promote collaboration and encourage cooperation between the nuclear organizations in their countries responsible for research in sphere of the peaceful uses of atomic energy as well as between the industrial companies connected with the development of the peaceful uses of atomic energy in each of the countries. That cooperation and collaboration may include the following areas:

"A) The management of intermediate and low-level radioactive residues; B) reactor instrumentation; C) radiological protection of personnel; D) research and development of structural and reactor materials and related equipment; E) guarantee and control of quality; F) licensing; G) plasma physics.

"Other areas may be added by mutual decision of the two governments.

"2. The two governments will exert efforts to promote cooperation and collaboration in the peaceful uses of nuclear energy, favorably considering the exchange of scientists and experts, admitting nationals of the other country to nuclear establishments or in related institutions in their countries for the purpose of training personnel or, when appropriate, to carry out common programs.

"3. The two governments will exert efforts to facilitate the reciprocal supply and the importation of materials required by the development of nuclear energy, as well as the equipment and technology necessary to achieve their nuclear programs.

"4. The two governments will request that the International Atomic Energy Agency (IAEA) apply the appropriate safeguards to the material, equipment and technology supplied within the context of this memorandum as well as to the material produced with any equipment supplied, or to the subsequent generation of material, in accordance with the safeguard procedures of the IAEA applicable to each side, and will decide on the appropriate measures of nonproliferation and physical protection to be applied to material, equipment and technology supplied within the terms of the present document."

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CSO: 5100/2046

## FRG PACT COORDINATOR VIEWS URANIUM ALTERNATIVES, TRAINING

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 3 Dec 81 p 37

[Article by special correspondent Milano Lopes]

[Text] Bonn--There are only two possible alternatives for Brazil: it can either resign itself to using the most expensive centrifugal jet ("jet nozzle") process, which it shares with Germany, to enrich its uranium in the near future, or submit to the supply of the enriched uranium producers in the market, who use the two cheaper processes, namely ultracentrifugation and gaseous diffusion.

That not very bright prospect for the future of our nuclear production was predicted with great clarity--and a good dose of frankness--by Dieter Nentwich, who coordinates the international cooperation projects at the Julich Research Center, 80 kilometers from Bonn, including those connected with the Brazilian-German agreement. Although the "jet nozzle" process is being developed by Professor Becker in another nuclear research center in Germany (in Karlsruhe), the scientists who work in Julich know his effort to transform the process into something economically profitable, capable of competing in the market with its two competitors.

### Political Question

For years, the Germans have been trying to discover a way of reducing the consumption of energy per Unit of Separative Work (UTS) in its enriching uranium process without achieving success. In 1977, Professor Becker made a last attempt, redesigning the small channels in order to reduce the friction of the gases, one of the causes of the high energy consumption. According to the technicians who work in Julich, including some Brazilians, it is possible that the costs of energy of the jet nozzle system today may approach the costs of uranium enrichment using gaseous diffusion, but that is not the problem.

In Nentwich's opinion, it is preferable for a country such as Brazil to assume higher costs with its own uranium enrichment process than to submit itself to the market suppliers, whose change of political position can possibly threaten normal supplies to the future nuclear plants. In addition to that, he said, since Brazil has an enormous hydroelectric energy potential, which can be generated at a relatively low cost, it will not have great difficulty in consuming more energy in its uranium enrichment process, even paying a lower price for autonomy in that critical segment of the nuclear fuel cycle.

It appears that the difficulties in obtaining a substantial reduction in the consumption in energy per UTS in the jet nozzle process are greater than were imagined, inasmuch as nobody in Julich knows how long it will take for that process to be available in the market. "As you know," declared Nentwich, "a new technology many times takes years and years to be reliable, especially in economic terms. For that reason, nobody can guarantee when it will be in a position to compete in the market. We ourselves do not know when we will begin to use it."

The political question, however, assumes the most important aspect, and to support that argument, one may recall the recent episode regarding the supplying of uranium for the first reactor charges of Angra-1, when a change in American law ended up creating a diplomatic problem between the two countries, finally happily resolved.

## Transfer of Technology

From the point of view of the transfer of technology in the strictly technical context, that is, in the opinion of the scientists who are working in Julich, the delays in implementing the Brazilian-German nuclear agreement are not causing concern. "On the contrary," declared Dieter Nentwich, "if there is any delay in the installation of the units, that will give us more time to train the Brazilian personnel."

According to his diagnosis, two basic difficulties impede a greater acceleration of the transfer of technology process, which is made basically at the level of the man, of the mind: the first is the lack of specialists adequately qualified to be sent to the nuclear research centers in Germany; the second is the inadequacy of funds to finance the program.

According to the documents signed between Germany and Brazil in the area of technical cooperation and the transfer of technology, and in the context of the 1975 nuclear agreement, the Brazilians who come to train in Germany have their passage paid by the German Government but their stay is financed by the Brazilian Government. But when German professors and specialists go to Brazil to train Brazilians, they receive the passage from the German Government and their stay is paid for by the Brazilians.

According to Nentwich's calculations, at least 77 Brazilian specialists trained in Germany between 1977 and 1981, a little less than half, or about 35, only this year. But that number is still not enough to form what the experts call the "critical mass," that is, a qualitative and quantitative volume of know-how absorbed that by its own force is capable of spreading and speedily developing its own expansion. It is believed in Julich that when that is possible, the process of absorbing technology will have attained the desirable level.

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# FRANCE REAFFIRMS COOPERATION IN COBRA REACTOR DEVELOPMENT

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 17 Nov 81 p 6

[Article by correspondent Reali Junior]

[Text] Paris--The agreement signed between Brazil and France for the development of a "Cobra"-type research reactor will not be jeopardized by the fact that the French are not willing to supply the fuel that will power it, highly enriched uranium. French sources from the nuclear sector stated yesterday that, from the outset, the agreement envisaged that the fuel would be supplied by the United States, but during the Carter administration the Americans decided to suspend all sales of that type of fuel, a decision that was compatible with the nonproliferation policy of the former president. For that reason, France at that time, did not feel responsible because no clause in the agreement signed had provided for supplying fuel to the reactor.

At the present time, France is still not in a position to take care of the Brazilian order due to the political changes that have occurred in the country, and is awaiting a redefinition of its policy for exporting nuclear material. According to the same sources, that explains the Brazilian approach to Italy and also the recent statements of the president of the Brazilian Nuclear Corporation (NUCLEBRAS), Paulo Nogueira Batista, who seeks to justify the approach to the Italians with that purpose.

That does not mean that cooperation with France for the development of the "Cobra" reactor has been suspended. The current French administration has reaffirmed its desire to go ahead with all commitments assumed by the previous government, completely fulfilling the agreements signed, among them being that signed with Brazil.

As for cooperation for development of a prototype of a second-generation nuclear reactor, a super-regenerator, known in France as the "Project Phoenix," the sources revealed that no agreement was signed between the two countries but talks did take place regarding the possibility of cooperation in that area. That type of reactor depends on the supply of plutonium. The difficulty is that France never exported plutonium and will continue to reject any sale, submitting to international regulations. That problem was not discussed since any possibility of supplying fuel depends on a cooperation agreement for the development of a second-generation reactor, which has never existed between the two countries.

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# MILITARY, SCIENTIST COMMENT ON REPORTED ARGENTINE A-BOMB CAPABILITY

## Military Not Worried

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 3 Dec 81 p 7

[Text] Brasilia—The Brazilian military do not appear concerned over the reports that Argentina is already in a position to build a nuclear bomb. When asked about the matter yesterday, Air Minister Delio Jardim de Mattos limited himself to saying that he could only "congratulate Argentina on that advance." He pointed out that Argentina is a friendly country and that other countries having the same relationship with Brazil, such as the United States, France and the Soviet Union, have nuclear bombs "without thereby threatening our friendly relations."

Generally, the military do not believe that Argentina is thinking of building a bomb now, even admitting, from the information that has been revealed, that that country is advanced in the field of nuclear research. An important officer noted that, in the first place, building a bomb depends on a "political decision," which implies the release of all the resources, including economic resources, that are necessary to achieve that objective. For that reason, the Brazilian military believe that if Argentina has already adopted that decision (which no one believes), Brazil will analyze it to see if that endangers the security of the country and the continent in order then to adopt the measures called for by the situation.

Those same military men base their disbelief of the report that Argentina is preparing to build its atomic bomb on the fact that that country is going through a serious economic crisis and that the financial investment for building the bomb is quite large. The same thing occurs with Brazil, which is applying all of its funds to priority projects, among them the nuclear program, but exclusively for peaceful purposes "on behalf of the social development of the country," they concluded.

## 'NEW SCIENTIST' Report

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 3 Dec 81 p 7

[Text] "If the reports by the NEW SCIENTIST are correct, and there is nothing to indicate that they are not, Brazil has lost the race. And it is losing it because it did not believe the successive warnings issued by the research community with regard to the uninterrupted continuation of the Argentine nuclear program."

That analysis, made by an influential Sao Paulo University scientist connected with the energy sector, confirms a statement by physicist Rogerio Cerqueira Leite of the University of Campinas, who is of the opinion that "the country can obtain its bomb in a minimum period of 1 year and a maximum of 2 years, in the event that a parallel atomic project follows the conventional system of the use of natural uranium and heavy water, similar to the line adopted throughout the world since the United States began the Manhattan Project in the forties."

Rogerio Cerqueira Leite believes that "that would be feasible with the filling of certain vacancies in the Brazilian research institutions by contracting no more than 10 foreign specialists, thereby accelerating the whole process.

"Basically the national gap in the field of technology is connected with advanced, nuclear chemistry," physicist Cerqueira Leite points out. In his opinion, "the route to the bomb, the simple, natural route, which India certainly used and which Israel--if it has built military atomic devices--followed, is through natural uranium, heavy-water reactors, where it is possible to avoid the first sequence, which is extremely sophisticated from the technological viewpoint, namely, enrichment."

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## NUCLEBRAS PLANS INVESTMENT OF $340 MILLION IN 1982

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 19 Nov 81 p 21

[Text] Rio--Unlike the electric sector, which had its investments substantially reduced for 1982, the nuclear sector has already programmed investments of $340 million (40.46 billion cruzeiros), intended for the acquisition of equipment to be installed in the Angra-2 and -3 plants. The Brazilian Nuclear Corporation (NUCLEBRAS) signed 11 contracts with Cobrasma, Confab and Bardella in the amount of 8.35 billion cruzeiros, according to information revealed in Rio yesterday by the directors of the companies.

NUCLEBRAS explained that of the total programmed, contracts for equipment were concluded with the three companies in the amount of 14.3 billion cruzeiros out of a package of orders from national industry totaling 26.2 billion cruzeiros. According to the corporation, in a second phase, another 14.3 billion cruzeiros will be spent on equipment by the second half of next year, when new contracts will be concluded with Brazilian industry. The Confab, Cobrasma and Bardella companies will get another 7.14 million cruzeiros of those orders.

### The Contracts

The vice president of Confab, Antonio Carlos Vidigal Filho, revealed that the company signed five contracts to supply equipment to the Angra-2 and -3 plants in an amount in excess of $50 million (5.95 billion cruzeiros). Confab is to build the containment vessels of the two plants, the access locks to the vessel, the waste processing system, the water supply vessel of the turbine, and the set of tanks and pressure vessels.

Vidigal Filho pointed out that most of the most significant equipment of the plant was ordered from Confab but he was not in a position to clarify if new contracts will still be signed for Angra-2 and -3, explaining that the industry's directors and experts are continuing to talk to NUCLEBRAS personnel. He pointed out also that the company is "working steadily" as a result of the orders received and that NUCLEBRAS advanced a "substantial sum" as a down-payment. Delivery of the equipment is scheduled for between 1982 and 1984.

Cobrasma has two contracts in the amount of 1 billion cruzeiros to supply heat exchangers, auxiliary boilers and mixing separators during the period of 1983 to 1985. The director of the company, Durval Jose Maria Jannuzzi, said that in addition to those contracts, there are five more that are being negotiated but he does not yet know their value because the bids are being prepared. Jannuzzi added that NUCLEBRAS is paying its bills on time in accordance with the clauses of the contracts. "I have nothing to complain about," he declared.

Bardella signed four contracts with NUCLEBRAS in the amount of 1.4 billion cruzeiros to build and assemble in Angra-2 and -3 systems of traveling cranes, traveling arcades [porticos], the water purification system and the thermal insulation system. The company's commercial director, Newton Antonio Pietsther, said that more than 10 contracts will be signed: 4 this month, 2 in January and 2 in February 1982, and the remaining 2 at a date to be established. Five contracts will be for Angra-2 and five for Angra-3, for an estimated overall amount of 3 billion cruzeiros. Deliveries of the initial orders are scheduled for 1982 and 1983.

The Bardella director observed that NUCLEBRAS is in excellent technical condition because, like the other companies, it has trained its personnel in Germany, where they familiarized themselves with the technology of producing the equipment ordered for the Brazilian plants.

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BRAZIL

## URANIUM ENRICHMENT PLANT IN ITATAIA CONFIRMED

### Cals Statement

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 2 Dec 81 p 26

[Excerpt] Minister of Mines and Energy Cesar Cals said in Sao Paulo yesterday that the uranium enrichment plant will be located in the municipality cf Itataia, Ceara. According to the ministry's Plan 2000, the power of that plant will be 1,300 megawatts, or two 636-megawatt plants will be built. According to the minister, who delivered a talk in commemoration of the 15th anniversary of the Sao Paulo Electric Company (CESP), the plant will be associated with phosphate. Itataia has the largest uranium reserve in the world, with 128,000 tons, and the Mines and Energy Ministry plan is to produce 3,000 tons of uranium concentrate per year, already enriched.

"There is no other possibility for the world by the year 2040 except for nuclear energy," declared the minister. He confirmed that Brazil will have nine thermoelectric plants, one in Itataia and eight in the southeast region (Sao Paulo with two or four). According to the minister, the enrichment of uranium is very important because 1 kilo of concentrate costs $100 whereas enriched uranium costs $1,576. In addition to the uranium complex, the ministry plans to establish a phosphates complex.

According to the minister, the nuclear fuel cycle will begin in 1982 with the use of French technology in Pocos de Caldas. It continues with the Itataia concentrate plant intended for export, and that of Lagoa Real in Bahia, for domestic consumption. The second stage is being developed by the Nuclear and Energy Research Institute (IPEN), for operation in 1983, aimed at [producing] uranium hexafluoride, but the ministry has already purchased a hexafluoride plant from France. After that come the stages of manufacture of the fuel element, or uranium reprocessing with German technology and Italian technology of fast-breeder reactors.

### Physicist Doubts Economic Feasibility

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 2 Dec 81 p 26

[Text] Rio--Physicist Jose Goldemberg said in Rio that the investment of billions of dollars in the Itataia industrial complex in Ceara for the production of uranium concentrate and enriched uranium intended basically for the foreign market is an "unacceptable abuse" because "the return of the money within a reasonable period is quite doubtful with the demand for the product in obvious decline in the world."

The uranium market, declared Goldemberg, is very difficult, with depressed prices, which should prevail for at least 15 years because there is a slowdown in the nuclear programs in the countries where they are most developed. For Brazil to plan to make huge investments in that complex without taking the domestic economic problems into account is foolhardy, he observed. Furthermore, it is known that the "jet nozzle" (centrifugal jet) process of uranium enrichment has not yet been proved on an industrial scale, he added.

Goldemberg pointed out that the mines and energy minister's aides should inform him that the revenue from the sale of uranium abroad will not be enough to pay for the Brazilian nuclear program as that minister desires. According to Goldemberg, any economist can demonstrate that that will not work out. It is known that at the present time the production of uranium is two times greater than world needs and for that reason, there is a surplus of that fuel, he said.

## Problem

Despite the efforts and the immense expenditures, pointed out the physicist, the country can face a very serious problem if the Resende pilot unit does not confirm the possibility of producing enriched uranium on an industrial scale. Brazil would then have several reactors and a terrible dependence for fuel, submitting "to very complicated agreements in order to obtain it."

Jose Goldemberg observed that there have been many reports that the Brazilian nuclear program will be pushed in 1982 in a more dynamic way. He cannot see how that can happen considering the national economic situation but, under pressure, "the stoutest minister" in the republic (Delfim Netto) "continues to push the program forward as the most suitable way to act. Even so, the nation is committing itself more and more, becoming more and more indebted. The most correct thing would be to sit at the table and renegotiate that program with less plants and longer time periods," said Goldemberg.

He pointed out that the scientific community was not consulted when the Brazilian-German agreement was concluded, nor during the formulation of the nuclear program. The decisions were taken in very restricted circles and as a result of that behavior the errors are always justified, he said. He cited the case of the NUCLEBRAS Heavy Equipment Corporation (NUCLEP) "as another undertaking that has no way of escaping idle capacity except by producing equipment for plants that cannot be built due to lack of money although planned and with timetables for implementation."

## Note

NUCLEBRAS yesterday released an official note reporting that the president of the company, Paulo Nogueira Batista, will accompany Minister Delfim Netto on his trip to Germany for the exclusive purpose of discussing financing for the Brazilian nuclear program. NUCLEBRAS also reported that Plan 2000 is in the final phase of preparation and, therefore, has not [yet] been approved by Minister Cesar Cals.

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CSO: 5100/2046

## MINES AND ENERGY MINISTRY ON NUCLEAR PLANT OPERATION

PY230250 Rio de Janeiro O GLOBO in Portuguese 16 Dec 81 p 20

["Note" released by Mines and Energy Minister Cesar Cals on operation of Angra I nuclear plant; issued in Brasilia, date not given]

[Text] Regarding news carried in the press yesterday (15 December 1981) that the Angra I nuclear plant would be shut down, the Mines and Energy Ministry provides the following information:

1. After having proceeded to charge the Angra I nuclear plant during the last week of September, the program of startup tests was set in motion.

2. Once that program is completed, the reactor will go critical [sustained chain reaction], that is, heat will be generated by nuclear reaction.

3. Late in October a refrigerating liquid leak developed in the vapor generator at the Ringhals nuclear plant in Sweden which is equipped with a reactor identical to the Angra I reactor plant. Therefore the Mines and Energy Ministry commissioned experts of the National Nuclear Energy Commission and the Furnas Electric Company, Inc. to travel to that country to obtain information on the mishap so that they can suggest preventive measures regarding the operation of the Angra I nuclear plant.

4. The mishap at the Swedish nuclear plant results from vibrations caused in tubes by water flow at high operational power level; the same problem appeared in a similar plant in Spain; and in both cases the operating power was above 50 percent of total capacity.

5. The National Nuclear Energy Commission has now authorized the Furnas Electric Company Inc. to normally proceed with the program of startup tests at a power level of less than 30 percent of the total plant capacity.

CSO: 5100/2072

## BRIEFS

URANIUM, THORIUM DETECTIONS--Maceio--Engineer Adalberto Camara, the president of the National Resources Development Company (EDRN) in Alagoas, reported yesterday that a plane of the National Mining Department in a study flight over the state "detected the presence of uranium and thorium (elements for the production of nuclear energy) in the rural and backcountry area of the state." According to him, the Brazilian Nuclear Corporation (NUCLEBRAS) notified the EDRN that beginning in February, it will send to Alagoas experts specialized in "detection to locate the deposits." Camara said also that "NUCLEBRAS was informed of the presence of the two elements considered to be strategic. The plane that detected the elements is equipped with equipment for only what is termed the first step of exploration." The EDRN, which is a company connected with the Planning Secretariat of Alagoas, said that it has more detailed information. Camara said that Governor Guilherme Palmeira was informed of the discovery made by the EDRN. [Text] [Sao Paulo O ESTADO DE SAO PAULO in Portuguese 4 Dec 81 p 27] 8711

WASTE SITE PROPOSAL--Salvador--Energy consultant Carlino Nastari, who is in Salvador participating in a seminar on the prevention of accidents in the petrochemical industry, suggested yesterday that the atomic waste to be produced by the nuclear plants be stored in the uninhabited oceanic islands belonging to Brazil. He explained that when the world production of nuclear energy began, the atomic waste began to be emptied into international waters, which was immediately suspended owing to the possibility of contaminating the sea with radioactive material. In Brazil that type of material is being placed in cases lined with a thick layer of concrete. But beginning next year, Brazil is going to produce 2 tons of atomic waste. "For that reason," he said, "the most appropriate place to store it would be the oceanic islands such as Trindade and Martim Vaz, 1,140 kilometers from the coast of Espirito Santo and Sao Pedro and Sao Paulo abreast of the island of Fernando de Noronha." [Text] [Sao Paulo O ESTADO DE SAO PAULO in Portuguese 2 Dec 81 p 26] 8711

ANGRA-1 OPERATION IN 1982--Mines and Energy Minister Cesar Cals revealed yesterday that the Angra-1 nuclear plant will not begin to operate until after all the replacement equipment, intended to increase the reliability of the energy supply, arrives in Brazil. The minister did not want to specify the date for the entrance of operation of the plant but said that it is expected to be in early 1982. Cesar Cals said that his ministry is going to prepare a list of projects in the energy sector which will not be subject to cuts in next year's budget. Questioned at the Rio Sheraton Hotel, where he went to preside over the closing session of the First

Brazilian Gas Congress, Cals said he had not yet received the directives announced by Planning Minister Delfim Netto. He believes, however, that undertakings of vital importance to the country such as the Carajas project will not be affected by the policy of cuts. Cesar Cals asserted that the holding down of expenditures will also not affect the nuclear program, which, he stressed, has a definite timetable and is part of an agreement that provides for the transfer of German technology to Brazil. The minister said that the program to develop alternative sources of energy was not deactivated this year; there was merely a delay in the application of vegetable oils to replace diesel oil. According to the minister, the population should not become alarmed over what will happen to the atomic waste to be generated by the nuclear plants. "We are going to select a safe place for that. No area has been determined. We are even thinking of uninhabited islands." [Excerpt] [Rio de Janeiro O GLOBO in Portuguese 28 Nov 81 p 21] 8711

URANIUM RESERVES--Brazil's uranium reserves have increased to 266,300 tons, a 12.6 percent over last year. The information has been provided by Nuclebras. [Sao Paulo FOLHA DE SAO PAULO in Portuguese 22 Dec 81 p 19]

CSO: 5100/2072

# FOREIGN INVESTMENT IN URANIUM EXPLOITATION

Lima EL COMERCIO in Spanish 8 Dec 81 p A-8

[Text] Peru's uranium reserves give promise of a bright future. Foreign investment would be involved in mining operations, in keeping with a prototype contract worked out by the Peruvian Nuclear Energy Institute (IPEN), which has also defined terms of reference and the bases for future bidding.

This information was made public by the president of IPEN, Gen Juan Barreda Hidalgo, at a brief meeting with newsmen yesterday, after presiding over the second meeting of the Regional Program for the Evaluation of Uranium in Latin America.

With respect to specific objectives of the meeting, he said that the most favorable geological areas for the discovery of uranium in Latin America will be mapped and that a number of steps will be taken to determine the size of uranium reserves.

Barreda said that in Peru, uranium is found, not only as a main product, but also as a by-product, which makes it necessary to go through a series of processes and to use the proper technology in order to obtain it.

He said that in the Department of Puno, a vast area containing uranium has been found. Part of it is being worked directly by IPEN (approximately 20 square kilometers).

He believes that the study, exploration for and working of uranium require enormous investments, but that everything indicates that in the future, this strategic resource, the demand for which is increasing, will contribute to the government's coffers.

Concerning the Peruvian Nuclear Research Center now being built in Huarangal (kilometer marker 30 on the North Pan American Highway), he said that its cost is $80 million.

Some 30 percent of the engineering work has been done. Another 50 percent will be completed next year and the remaining 20 is planned for 1983. The center will produce radioisotopes to be used in agriculture, industry, mining, and so on. It is one of the most modern plants of its type.

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CSO: 5100/2063

## URANIUM EXPLOITATION FOR PEACEFUL USE ADVOCATED

Lima EL COMERCIO in Spanish 9 Dec 81 p A-2

[Text] The world is witnessing the increasing use of nuclear energy for peaceful purposes. Its application for military aims is rapidly being surpassed by the countless uses now seen in industry, medicine and agriculture. Moreover, everything would seem to indicate that in the not-too-distant future, it will be an advantageous replacement for conventional sources of energy, helping solve this crucial problem.

Because of current needs and the prospects of nuclear energy, production of uranium constitutes the mining activity having the greatest scope, the one that will be called upon to meet great economic expectations of the future.

It is our good fortune that uranium deposits have been discovered in several spots of the Peruvian territory, in some cases as the main product and as a by-product in others. The uranium deposits have been under study since the current Peruvian National Energy Institute was set up in 1955 -- as the Atomic Energy Control Board at that time -- as the government agency in charge of all activities related to the peaceful uses and applications of nuclear energy.

The importance of the presence of uranium in our territory does not have to be emphasized, because of the advances being made by nuclear energy among us and also because the production of the mineral that serves as a basis for its production -- uranium -- can signify an important source of resources for Peru.

Naturally, uranium prospecting, exploration and later mining represent an undertaking requiring enormous technical and financial resources. It is therefore necessary to study alternatives such as the one now being viewed by IPEN concerning the participation of foreign capital through a prototype contract, whose terms of reference and bases of bidding are part of the study.

There can be no doubt that the strategic nature of this mineral means that we must be very cautious and develop all possibilities to the maximum extent, without neglecting the prime national interests. The scarcity of uranium in the world makes it a highly sought-after and ponderable mineral and in the long run, an energy factor that will shore up the economy and contribute to the national treasury.

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CSO: 5100/2063

## LONDON PAPER ON U.S.-ISRAELI NUCLEAR COOPERATION

PM080923 London ASH-SHARQ AL-AWSAT in Arabic 5 Dec 81 p 1

[Iimad al-Din report: "U.S. Missiles to Carry Israeli Nuclear Bombs"]

[Text] Washington, al-Sharq al-Awsat Bureau--al-Sharq al-Awsat is here revealing a secret published in the world press for the first time. Informed sources in Washington have confirmed that the United States and Israel have orally discussed the possibility of U.S. aid for Israel in the manufacture of advanced missiles to carry nuclear warheads.

The sources say that negotiations on this project have been in progress since last July and that President Reagan approved it in principle during his meeting with Israeli enemy Prime Minister Menahem Begin last September.

It has been learned that this agreement is part of the secret clauses of the U.S._ Israeli memorandum of strategic understanding.

The informed sources have also confirmed that Israel now has between 12 and 15 atomic bombs ready for launching by missiles manufactured and assembled in Israel. The sources have further confirmed that Israel has between 250 and 300 tons of uranium and that, in agreement with several U.S. organizations especially the Atomic Energy Commission and the Atomic Resources and Supplies Company in Pennsylvania, it has produced advanced types of enriched uranium.

The American sources say that Israel obtained U.S. technical and advisory expertise on how to attack the Iraqi nuclear reactor. On 7 July (Josef Kifti) and (Joseph Shultz), both from the Israeli defense ministry, were briefed by the Nuclear Control Commission--which is a governmental advisory commission--on the destructive capacity of 1,000 kg bombs and 2,200-pound bombs in relation to the nuclear reactor.

The American sources stress that the destruction of the Iraqi nuclear reactor was a part of an Israeli plan drawn up by Israeli Defense Minister Ari'el Sharon during his meeting with Begin on 4 October 1980.

The same sources confirm that Israel built its first bomb in the summer of 1968 and that information on the manufacture of the first Israeli missile for carrying the atom bomb was exchanged between Israeli and American intelligence in August 1979. They also say that understanding will be reached regarding consultations on the development of Israel's nuclear capabilities.

CSO: 5100/4706

## COMPANIES TO INCREASE URANIUM PROSPECTING SPENDING IN 1982

Lusaka DAILY MAIL in English 15 Dec 81 p 7

[Excerpt] The four international companies prospecting for uranium in the country have so far this year spent K8 million in their operations.

This figure is likely to go up to about K10 million next year.

Director of the Prescribed Minerals and Materials Commission, Mr Nick Money, said this in Lusaka yesterday.

Mr Money said that the money by the four companies was mainly spent on equipment for field work and on salaries for workers.

He added that this was a great boost to the country's economy as the money came in form of foreign exchange.

The companies prospecting for the mineral are Agip SPA of Italy, Cogema, France, Saarberg Interplan, West Germany and Power Reacter Nuclear Fuel Development Corporation of Japan.

Mr Money said that in addition, the four companies were providing employment to Zambians.

He said Agip SPA and Cogema were prospecting in the Western Province, Saarberg Interplan on the Copperbelt and Power Reacter Nuclear Fuel Development Cooperation (PR-NFDC) in Southern Province.

Mr Money however said it would take at least two years for any of these companies to get positive results in areas where prospecting was being carried out.

"It is only after you get the exact ore content that you can decide whether it is feasible to start full production or not", Mr Money said.

Three more companies from the United States of America (USA), Britain and Romania had showed interest to embark on prospecting for the mineral.

However, uncertainity regarding prices of the mineral at the world market might be delaying these companies from proceeding with their work.

Mr Money said that another radioactive mineral, thorium had been discovered in the Itezhi-Tezhi area in addition to uranium.

However, prospecting and mining of the mineral could not start because of low prices it was currently fetching on the world market.

CSO: 5100/5611

## SWEDISH CENTER PARTY LEADERS: END NUCLEAR PACT WITH FRANCE

Stockholm DAGENS NYHETER in Swedish 11 Dec 81 p 2

[Article by Anders Ljungren, Birgitta Hambraeus, and Par Granstedt]

> [Text] The government must make clear immediately that the reprocessing of Swedish nuclear waste is out of the question. For this reason, the agreement with Cogema of France must be terminated. This was demanded by three Center Party leaders--Par Granstedt, Birgitta Hambraeus, and Anders Ljungren--after it was revealed in the American magazine SCIENCE that it is possible to utilize nuclear fuel from power plants to produce atomic bombs.

Nuclear power and nuclear weapons go together! They are Siamese twins, as Prof Hannes Alfven says. As opponents of nuclear power, we Center Party members have stressed that again and again.

As the debate preceding the referendum in 1980 progressed, more and more people agreed with our warning that the relationship between nuclear power and nuclear weapons is real. After Israel's bombing of nuclear fission reactors in Iraq, even more people should understand that the risk of the proliferation of atomic bombs following in the footsteps of civilian nuclear power cannot be ignored. Now there are new revelations of great significance.

The well-known magazine SCIENCE, which has gained prestige for its scrupulous choice of only reliable articles, presented an article by Colin Norman in volume 214, 16 October 1981, entitled "Weapons Builders Eye Civilian Reactor Fuel."

### A Sensation

What Norman writes in his article must be a sensation for those who have maintained that plutonium from nuclear power plant fuel is unusable in the production of nuclear weapons.

Norman describes how the Lawrence Livermore Laboratory received 62.9 million dollars during the period 1980 to 1982 to develop a method utilizing lasers to separate plutonium isotopes so that spent nuclear fuel could be used to produce atomic bombs. The program is so successful that the United States Department of Energy (DOE) believes that a full-scale plant can be in operation as early as 1989. It has been indicated that the program, including construction of the factory, would cost $560 million. Building an additional "nuclear weapons reactor" to produce plutonium, on the other hand, would cost on the order of $3 billion and it would be completed only by the mid-1990's.

A DOE spokesman, Secretary of Energy James B Edwards said the following at a meeting of the Energy Research Advisery Board on 3 September: "There are so many advantages of reprocessing. For example, we will need more plutonium for our weapons program and the best way I can imagine to obtain the plutonium is to solve your waste problem, reprocess it, and extract the plutonium."

One of the best known representatives in the United States of the movement to prevent the proliferation of nuclear weapons, Paul Leventhal, came to a different conclusion: "Utilizing commercial plutonium for nuclear weapons would destroy the most fundamental principle of the "Atoms for Peace" program and entice other countries to do the same. The fundamental principle that civilian nuclear power materials and facilities may never be used for military purposes . . . is the very basis of the nonproliferation treaty and the security system of the international atomic energy establishment. If the United States forsakes this principle, the entire international nonproliferation structure is in jeopardy of collapsing like a house of cards."

## Controversial

Thus, the proposed use of nuclear power plant fuel to produce weapons is a controversial issue in the United States and opponents include at least some segments of the nuclear power industry, among other things because of their well-founded conclusion that such activity would give an additional impetus to the movement against nuclear power. As far as Sweden is concerned, the technological and economic development indicated by Colin Norman in his SCIENCE article emphasizes the fact that efforts to strengthen the nonproliferation treaty must be intensified. IAEA's supervisory capabilities must also be improved dramatically.

The question of utilizing spent nuclear fuel for atomic bombs is also closely connected with increasing nuclear arms buildups as such. When Reagan came to power, it was not long before the illusion that there is no connection between nuclear power and nuclear weapons was completely torn apart. Active work for mutual nuclear disarmament has now become even more important.

For Sweden the question of reprocessing is especially important. Reprocessing was made a topic of current interest primarily by the so-called AKA (Nuclear Power Waste Commission), the task of which was to study the feasibility of a Swedish facility for this purpose. During a TV program, Olof Palme stated in reference to this study's results that the waste problem no longer was an obstacle to the expansion of nuclear power. Any cause for concern that may have existed earlier had now been removed, he maintained.

We in the Center Party were critical. We had information that convinced us that the waste problem had not been solved. This was one of the reasons we believed it was irresponsible to continue developing nuclear power. By demanding in the so-called Nuclear Power Plant Act that totally safe final storage of high-level radioactive waste be devised before a new reactor could be started up, we believed that in practice this would mean an end to nuclear power. This did not occur. The old connections were too strong.

## Risks Increase

It is now clear that reprocessing does not facilitate the storage of waste and, in addition, that it increases the risk of more nuclear bombs in more nations. The Nuclear Power Plant Act also opened the door to waste management without reprocessing.

The government must make clear immediately that the reprocessing of waste from Swedish nuclear power plants is out of the question. It should not be difficult to reach an agreement with the French to terminate the reprocessing agreement with Cogema.

We hope that such a change now can be made before great damage is done--before reprocessing according to the Nuclear Power Plant Act becomes a reality. All efforts now must be directed toward finding direct storage methods that can make plutonium from the waste unavailable for weapons use as well as protect from damage the lives and environment of coming generations. This is a difficult task--so difficult that the quantity of waste must be kept to a minimum by making the nuclear power age as brief as possible.

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## PARLIAMENT WEIGHING NEW LAW FOR NUCLEAR POWER PLANTS

Helsinki HELSINGIN SANOMAT in Finnish 29 Nov 81 p 25

[Article by Risto Valkeapaa: "Law Proposed for Nuclear Power"]

[Text] Finland, which is one of the leading nuclear power countries of the world, is quietly in the process of enacting nuclear power regulatory legislation, which is said to be the world's most comprehensive.

The new law will replace the 1957 atomic energy law, according to which the nuclear power industry has functioned to date.

For the present, the committee's law proposal is ready. If the law is approved in accordance with this proposal, society's hold on nuclear power will become tighter.

According to the proposed bill during the approximately 30-year operational period of the power plants the power companies will have to contribute a total of 3 billion markkas in reserves to the Bank of Finland. These funds would be reserved for the treatment of nuclear waste, and power companies would obtain these funds for their use when the treatment of waste becomes timely.

Teollisuuden Voima [Industrial Power] would suffer from this system the most since it will have to deal with difficult waste fuels. Imatra Power can return its waste to the Soviet Union.

In the opinion of the leadership of the Atomic Agency of the Ministry of Trade and Industry it is not right that the funds be taken from the power companies. It also wrote a dissenting opinion into the report.

At this time the bill is in the hands of the Ministry of Trade and Industry. It has submitted the proposal for discussion and consideration.

The ministry's stand in this matter is noteworthy. According to the ministry's stand it is feared that the bill will be quietly watered down when it is brought up for consideration in the parliament.

Such thinking has resulted in the fact that the ministry has not wanted greater publicity for the committee's proposal.

It would rather promote the bill behind closed doors. Among other things, it has not called for a press conference in connection with the submission of the report as is usually the custom in the submission of more important reports and proposals.

On Monday 12 October Trade and Industry Minister Pirkko Tyolajarvi received the committee's report, in which the legal framework for the use of nuclear energy in Finland is presented.

The results of this large effort were submitted to the minister in all secrecy. The only people present in the minister's office when the document was submitted were the members of the committee under the leadership of the chairman.

Normally, when it is a question of a more significant report, a press conference at the which the minister explains the issue at hand is held in connection with the submission of a report.

If it is a question of a report requiring special expertise, the minister will refer the newspaper editors to the committee's members and its chairman.

However, there was no inclination to promote extensive publicity on the nuclear energy bill. Newspaper editors were provided with only a brief communique, from which one could glean the information that a special reserve payment system will be attached to the bill. According to this system 3 billion markkas will be deposited into the Bank of Finland from the power companies during the operational period of the presently active power plants. The purpose of the system is to ensure that there will be enough money for the treatment of nuclear waste when the plants become nonoperational. The intent would be to use the money for this purpose even while the plants are still in operation.

Now the legislative committee's report has been submitted for consideration. The consideration period will conclude in the middle of January.

Dissenting Opinions

It was confirmed in the communique distributed on the day the report was submitted that the report includes five dissenting opinions. There was no elaboration.

There are two more dissenting opinions in the second report than in the committee's first report, which was submitted in February 1980. The work on the latter began in the beginning of 1978 already.

Those who are familiar with this issue have been able to read signs of changing power relationships within the committee from these dissenting opinions. The changing power relationships, for their part, have been natural since significant changes have occurred in the make-up of the committee.

The most significant of them was a change of chairman. Professor Kari S. Tikka of Helsinki University was appointed chairman in April 1980. Administrative Counselor Raimo Pekkanen, who had acted as chairman until then, requested to resign from this position.

Section Chief Olli Ojala of the Ministry of Internal Affairs, Inspector General Kyosti Suonio, and Legislative Counselor Mikko Kamarainen of the Ministry of Justice, who represented environmental protection considerations, submitted a dissenting opinion in the first partial report.

A dissenting opinion was also submitted by Director and Professor Antti Vuorinen of the Radiation Safety Institute.

The first partial report included an explanation of the licensing system and administration of nuclear power plants and the level at which democratic decisionmaking would occur.

Reserve funds for expenditures incurred in the treatment of nuclear waste and mining regulations are central to the second partial report.

Professor Antti Vuorinen did not submit a dissenting opinion in the second partial report. Its content closely reflected his own opinions.

However, the most significant dissenting opinion was submitted by Graduate Engineer Heikki Raumolin of Teollisuuden Voima. A dissenting opinion was also submitted by Bureau Chief and Industrial Counselor Ilkka Makipentti of the Ministry of Trade and Industry, Assistant Judge Juhani Santaholma of Imatra Power, and General Manager Pekka Jauho of the State Technical Research Center.

A dissenting opinion was also submitted by Olli Paasivirta, who became an assistant section chief after the first report, and Bureau Chief Matti Vehkalahti, both from the Ministry of Internal Affairs.

## The Power Is With The Ministry

The most important social decisions relavent to nuclear power are made in the Council of State according to the atomic energy law currently in effect.

In Finland the Ministry of Trade and Industry acts as the highest authority. Its role is two-pronged. The ministry's task is to promote the production of nuclear energy as well as control it.

In some people's opinion the Ministry of Trade and Industry functions in its role like a goat guarding a cabbage field.

The dissenting opinion submitted by Assistant Section Chief Olli Paasivirta, (Center Party) and Bureau Chief Matti Vehkalahti (Social Democrat) emphasized the dual role of the Ministry of Trade and Industry.

Their position is considered to be even more significant from a broader perspective; indeed, Paasivirta and Vehkalahti represent political parties which otherwise have differing views on the development of environmental administration.

In Paasivirta's and Vehkalahti's dissenting opinion it was also confirmed that inasmuch as a ministry responsible for environmental protection is to be established, the Radiation Safety Institute should be made subordinate to it.

Presently the Radiation Safety Institute is subordinate to the Social and Health Ministry.

Strict Safety

The role of the Radiation Safety Institute in matters of safety has become emphasized in connection with the stoppages of the nuclear power plant at Loviisa, among other things. The Radiation Safety Institute has also had the power to determine important changes improving the safety of power plants.

The guiding force of the Radiation Safety Institute in matters of nuclear power is Professor Antti Vuorinen. He is a highly valued national security and safety chief.

When Vuorinen was appointed to the position, a strong individual who could also withstand conflicts was sought according to the Ministry of Trade and Industry.

Vuorinen has withstood the pressure well, too well in the opinion of some. What he has had to say he has said directly. In the first report on the new legislation, among other things, he submitted a dissenting opinion. In his opinion in this report a decision was made to take incorrect issues to a higher level or for approval by the parliament. A decision in principle as to whether the construction of a nuclear power plant is in the interest of society will be presented for approval by the parliament.

In Vuorinen's opinion the decision itself to construct a plant should be taken to the parliament. Then experts in matters of security and safety would have sufficient information to present as support for a decision by the parliament.

Vuorinen was also strict with respect to the operating license granted to Teollisuuden Voima. Even in this matter he would have wanted the decisionmaking process to take place in the parliament.

The Radiation Safety Institute supported the license reluctantly and wanted greater guarantees. In its statement it also stated that Teollisuuden Voima had not handled the issue as well as Imatra Power.

The fact that the Soviet Union will accept spent fuel from the company has been considered to be a great advantage for Imatra Power. A separate agreement was concluded between Finland and the Soviet Union with respect to this matter. However, the operating license does not obligate Imatra Power to return the fuel to the Soviet Union. The Ministry of Trade and Industry left this portion of this issue open.

Teollisuuden Voima's operating license was not taken to the parliament as Vuorinen had wanted. The power company, which is backed by a great majority of Finnish industry, received its license in 1978 without any extraordinary difficulties. A decision of the Council of State was sufficient for putting the plant into operation.

According to the organizational plan the Ministry of Trade and Industry still has greater responsibility in matters of nuclear power than the Radiation Safety Institute, which in many issues only provides the ministry with statements of opinion.

Industrial Counselor Ilkka Makipentti, who directs the Atomic Agency of the Energy Section of the Ministry of Trade and Industry, has perhaps the greatest responsibility in the whole country as far as nuclear power issues are concerned.

## The Power of the Proposer

The power of the proposer is considerable in difficult issues requiring much expertise. Depending on the interests and knowledge of the ministry it approaches almost 100 percent. At this time Ilkka Makipentti is responsible for the preparation of this issue.

Makipentti is a strong supporter of nuclear energy and in his opinion it is not right to take money from the power companies for the processing of nuclear waste.

Makipentti also submitted his own dissenting opinion in the committee's second report. In his opinion it would be better if the funds remained within the power companies or the power companies should have the opportunity to retrieve the funds as a loan.

Makipentti's thinking differs significantly from Vuorinen's thinking in the question of nuclear waste. Vuorinen emphasizes safety and ethical responsibility for the kind of legacy we will leave future generations. Makipentti, for his part, wants to make certain that no unfounded burdens will be placed on nuclear energy.

According to Makipentti there is reason to keep in mind that spent nuclear fuel still contains a significant amount of energy, which in several countries is expected to acquire considerable economic value.

According to this thinking the exporting of waste from the country would not be particularly justified.

Makipentti also states that there is international interest in the continued use of the plutonium contained in spent fuel. "In the opinion of many, nuclear waste containing plutonium should not be exported from non-nuclear countries to nuclear countries," states Makipentti.

## The Future of The Environment

The nuclear power question is entangled in a powerful conflict between technical-economic thinking and environmental thinking. The use of nuclear energy is also a very difficult ethical question for many experts in the field and for individuals responsible for safety. The most central concern is the kind of world we will leave for posterity. And nuclear waste will not enhance this world.

In nuclear energy legislation there are apparent signs of ethical thinking at least to the degree that it attempts to take the overall interests of society into consideration. The legal committee has adopted this as its basic premise.

The thinking on the overall interests of society includes, for example, the idea that the necessity of a nuclear energy project should be taken into consideration from the point of view of the country's energy management when a new plant is being considered. Also the suitability of the location, the safety of the nuclear power plant, and environmental impact must be taken into consideration. In addition to this, provisions must be made for the disposition of nuclear fuel and waste.

The legal committee's chairman, Professor Kari S. Tikka, crystallizes the thinking on the overall insterests of society: it means an opportunity to take all socio-political points of view affecting this issue into consideration.

Policy-makers should be able to make their decisions freely in such a way that all economic, environmental, or even foreign- and general policy circumstances affecting this issue can be freely taken into consideration in the decisionmaking process.

Until now nuclear power in Finland has been developed in accordance with the general guidelines of the Ministry of Trade and Industry. The interests of society have meant general interests; in practice this has meant the most advantageous possible production of energy.

The environmental protectionists have been of a different opinion than the power companies with respect to the necessity of nuclear power projects, the suitability of their location, the safety of nuclear power plants, and their environmental impact. However, they have not had any real opportunities for any significant use of power or influence.

The nuclear energy legislation committee will take the environmental-ethical thinking of legislation at least a small step forward. This is reflected particularly in the regulations concerning mining activities. Uranium mining is no longer seen as just a mere promotion of mining, but it is evaluated on the basis of safety and the overall interests of society.

Environmental thinking is also reflected in the fact that society is demanding unconditional certainty concerning the funding of nuclear waste treatment and disposition. It cannot be dependent on the deveopment of the area of nuclear power and the power companies.

This thinking was made concrete in the committee's proposal that society take this money into its control and deposit it in the Bank of Finland.

Placing this money in the control of society nettles Teollisuuden Voima the most since it received its license even though the final disposition of its nuclear waste did not satisfy safety officials.

The bill for the disposition of waste will cost Teollisuuden Voima approximately 2.5 billion markkas in present money for the whole duration of the operational period of its plants. As a comparison it would be possible to build more than a dozen opera houses with this money; for the time being, we do not even have the funds for even one opera house. Another suitable comparison is the fact that Teollisuuden Voima's plants cost a total of 4.8 billion markkas. In the present situation it is estimated that one-fourth of a new nuclear power plant could be built with these nuclear waste funds.

Graduate Engineer Heikki Raumolin, who sat in on the final phase of the work in the committee, considers the depositing of money by the power companies to be unjust. The responsibility for taking measures remains with the companies, but the responsibility for expenditures is taken away, he states.

The power companies also suspect that the depositing of money in the Bank of Finland will not guarantee sufficient protection against inflation.

The bill before the parliament provides for a minimum interest, which is 1.5 percent less than that interest which the bank itself receives as basic interest from the central banks. At this time the central bank interest is 9.25 percent. The interest will be deposited for augmenting the reserves of the nuclear waste fund.

According to Heikki Raumolin the system does not guarantee that inflation will not eat up the funds. "The consumer, who will pay for these expenditures in the price of electricity, will suffer the most. In the worst case we will have to pay ouble the amount of the original sum."

Imatra Power's problem is not nearly as great as that of Teollisuuden Voima. The spent fuel from the plants at Loviisa will be returned to the Soviet Union so that Imatra Power will only have to make provisions for future expenditures involved in shutting down the plants.

Imatra Power's attorney, Assistant Judge Juhani Santaholma, however, submitted a dissenting opinion in the report. In Santaholma's opinion the Bank of Finland should pay a large enough interest on the funds so that a possible decline in the value of money will be completely covered.

Sweden has already enacted legislation providing for a system similar to the one the Finns are intending to enact. According to the law enacted in June the responsibility lies with the producer. The producer must in accordance with the principles of the bill approved in 1977 conclude an agreement on he treatment of fuel or the completely safe final disposition of fuel before the plant can be loaded with nuclear fuel. Another alternative is that the owner of the reactor must demonstrate that the problem of the final safe disposition of untreated spent fuel has been resolved.

In Sweden the intent is to deposit the funds in the state bank. However, according to the law the funds can be loaned out to the power companies.

The concept of the overall interests of society that is already a reality in Sweden and is now being presented in Finland is based on the right of society to present its own demands since it has approved the risks of nuclear power.

Also the fact that the insurance packages of Finland's power companies do not cover the cost of plants in the event of an accident gives an idea of the risks and the fact that this is not just a question of an ordinary area of industry.

Indeed, the nuclear power people say that the risk is a theoretical matter and its probability is extremely small in practice. Heikki Raumolin of Teollisuuden Voima states that the nuclear power industry is a completely safe undertaking.

In any event the insurance capacity available at this time on the world markets exceeds approximately 2 billion markkas per nuclear power plant. By a nuclear power plant is meant a totality. According to the principle Loviisa 1 and 2 and Olkiluoto 1 and Olkiluoto 2 make up two units. Their combined price is approximately 6 billion markkas.

This insurance will not cover the treatment and final disposition of nuclear waste material that is the result of a nuclear accident. The OECD-countries have a mutual agreement for covering damage caused to third parties. This agreement holds the nuclear power plant company responsible for approximately 180 million markkas. The state will be responsible for 300 million markkas and the parties to the agreement will together be responsible for 516 million markkas in the event of a nuclear accident.

It has been proposed that the limits of responsibility be increased so that the state's responsibility would increase to more than 900 million markkas and international responsibility to more than 1.5 billion.

The committee has also included in the bill a point according to which the power companies must make provisions for expenditures incurred as the result of an accident. The Council of State will make a final decision on the adequacy of the measures.

## The Possibility of Bankruptcy

In approving nuclear power society has adopted the premise that nuclear power is an exceptionally advantageous method of producing energy.

From the position taken by the power companies it has become apparent that the reserves for treating nuclear waste represent a considerable economic minus factor. It will mean 1.10 pennies per kilowatt hour in the cost of electricity for Teollisuuden Voima and 0.27 pennies for Imatra Power. The calculations are from the year 1980.

The nuclear waste treatment reserves have generally as much significance as an electricity tax. In practice the power companies will pass on these expenditures to the price of electricity and this reserve will thus mean more expensive electricity.

There were also ideas presented in the legal committee that the outside funding of a separate fund would even have an effect detrimental to safety.

General Manager Pekka Jauho's proposed idea is contained in his dissenting opinion. The background behind his idea is that the profitability of the nuclear power plants is not just a matter of course.

"The possibility of a power company becoming bankrupt must be taken into consideration in reserve- and insurance arrangements. Even in this instance insurance provides sufficient protection. In addition to this, there is reason to take note that the greatest danger is the operation of a power plant in its final stages if the power company is being subjected to the threat of bankruptcy."

According to Jauho the depositing of funds in the Bank of Finland is a poor solution even from the point of safety. He proposes that "the partial internal and partial external system already in use" be made the basis of nuclear legislation. In practice the system proposed by Jauho would mean that the funds would remain in the control of the power companies.

## Bill Before Parliament Soon

The atomic energy law in effect since 1957 has provided the guidelines for the legal regulation of nuclear energy in Finland. According to the experts it is, however, in need of immediate reform. The work begun in 1978 should be brought before the parliament as soon as possible.

From the point of view of the power companies the present situation is, however, relatively good. At least for the time being, they do not have to give money to the Ministry of Trade and Industry for deposit in the Bank of Finland.

The fact is that a system has already been formally arranged in such a way that the power companies have given the Ministry of Trade and Industry assurances concerning reserve funds.

The taxation issue connected with nuclear waste treatment reserves is, however, unclear. The situation is also deficient with respect to bookkeeping since the power companies have recorded nuclear waste treatment reserves as storage reserves, which they in fact are not.

The interest of the trade and industry minister is especially significant. In the final count she will determine how quickly this matter will pushed forward.

Minister Pirkko Tyolajarvi has not yet become familiar with the second report of the legal committee. A request for an interview by HELSINGIN SANOMAT was answered by a secretary, who expressed regrets because of the minister's busy schedule. He stated that an interview on this matter will be timely only after the elections.

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# PAPER DISCUSSES ECONOMIC PROBLEMS OF NUCLEAR WASTE

Helsinki HELSINGIN SANOMAT in Finnish 2 Dec 81 p 2

[Editorial: "Nuclear Waste Has Become a Funding Problem"]

[Text] Nuclear energy continues to be a question of such difficult magnitude and many interpretations that the officials making preparations for the legal reform concerning it have considered it justified to act in all secrecy. The committee which has deliberated the reform of the atomic energy law of 1957 submitted its second partial report to the Ministry of Trade and Industry without any ceremony.

This occurred in spite of the fact that a concept of overall interests of society as well as the weight of various points of view in questions of nuclear power have been expanded in the draft of the bill. This has even been an important premise of the work of the committee.

So far Finland's nuclear power decisions have primarily been based on economic points of view. The good competitive ability of nuclear power as well as the less than average crisis susceptibility of its availability have overriden any other considerations. Indeed, there has been much political discussion on the location of nuclear power plants, but rather in the same manner as on any other kind of large production facility.

If this legal reform will increase the area covered by the decisionmaking process in this respect, its spirit is completely correct. We must be able to take environmental questions as well as safety and security factors into consideration as important socio-political elements and not just as peripheral effects of democracy.

A responsible attitude toward the risks of nuclear power is reflected in the fact that there is now a desire to ensure the correct treatment of waste from nuclear power plants by the force of law. The committee is even proposing that the collection of funds be initiated as soon as possible and that they be deposited in the Bank of Finland for future needs.

It is important that provisions for waste treatment expenditures be made in time even though it will mean an additional economic burden for the power companies or the state. According to the plans reserve funds for the treatment of waste would create the greatest burden on the nuclear power capacity owned by private industry since the final disposition of its waste products is still an open quesiton. Indeed, the state is also included in private nuclear power production through Imatra Power.

The committee has run into dissenting opinions in the question of funding. Since the need for ensuring the treatment of waste is not, however, disputed, the detailed arrangement of this matter must not become an obstacle to enacting this legislation.

It presupposes, however, that the state also recognize its responsibility in the question of waste in such a way that it will not just transfer it to the shoulders of the power companies and in the final count the consumers in the form of legislative expenditures. Regardless of how the funding takes place without subventive measures, the price of electricity will in the final count cover the costs.

It is the state that wanted to promote the production of electricity and approved nuclear power as one of the means of production, primarily on the basis of economic arguments. Electricity produced in this way is now also a productive source of revenue for the state and giving it up has become the more difficult the more the needs of the public sector increase.

However, from the point of view of the consumer it would be reasonable if the decisionmakers considered the importance of nuclear waste treatment in relationship to the other expenditure needs of society. Even the continual need for increasing the administrative bureaucracy can be considered as a point of comparison.

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